

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

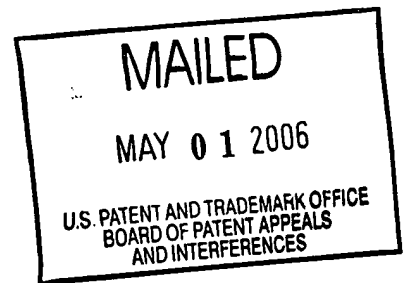
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANWAR CHITAYAT, and MUSTANSIR FAIZULLABHOY

Appeal No. 2006-0897
Application No. 09/817,622

HEARD: April 5, 2006



Before RUGGIERO, BARRY, and MACDONALD, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal from the final rejection of claims 1-4 and 6-27, which are all of the claims pending in the present application. Claim 5 has been cancelled.

The claimed invention relates to a method and system for controlling a rotary-linear actuator system, which includes a control system, a rotary-linear actuator having a movable plunger, and associated coils. The rotary-linear actuator system

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is integrated into a single module and is coupled to a network via a network interface. The associated coils are energized through an amplifier controlled by the control system to interact with associated magnets to effect rotational and linear movement of the plunger.

Claim 1 is illustrative of the invention and reads as follows:

1. An integrated rotary-linear actuator system, comprising:

a plunger movable along and rotatable about a longitudinal axis extending through the plunger, wherein the plunger is supported against a motor support via bearings;

a coil system having two sets of coils arranged to, when energized, interact with the plunger, the first set of coils being operative to provide an electric field to effect movement of the plunger in a linear mode, the second set of coils being operative to effect movement of the plunger in a rotational mode;

an amplifier coupled to the coils and operative to provide electrical energy to energize the coils; and

a control system integrated with the amplifier, the control system having a network interface operative to receive control information, the control system being operative to control the amplifier to selectively energize the coils to effect desired movement of the plunger based on the control information received via the network interface;

wherein the control system and an associated rotary-linear motor are integrated into a single module.

The Examiner relies on the following prior art:

Sudo et al. (Sudo)	4,644,205	Feb. 17, 1987
Gerard	4,751,437	Jun. 14, 1988
Horikoshi et al. (Horikoshi)	5,142,172	Aug. 25, 1992

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Mizutani	5,532,533	Jul. 02, 1996
Spinner et al. (Spinner)	5,771,174	Jun. 23, 1998

Claims 1-4 and 6-27, all of the appealed claims, stand rejected under 35 U.S.C. § 103(a). As evidence of obviousness, the Examiner offers Sudo in view of Spinner and Mizutani with respect to claims 11-15, and adds Gerard to the basic combination with respect to claims 1-4, 6-10, and 16-21. In a further rejection under 35 U.S.C. § 103(a), claims 22-27 stand rejected as being unpatentable over Sudo in view of Horikoshi, Gerard, and Spinner.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Briefs¹ and Answers for the respective details.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the Examiner, and the evidence of obviousness relied upon by the Examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellants' arguments set forth in the Briefs along with the Examiner's rationale in

¹ The Appeal Brief was filed October 20, 2004. In response to the Examiner's Answer mailed December 17, 2004, a Reply Brief was filed February 17, 2005. In response to a Supplemental Examiner's Answer mailed May 12, 2005, a Supplemental Reply Brief was filed June 23, 2005.

support of the rejections and arguments in rebuttal set forth in the Examiner's Answers.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as recited in claims 1-4, 6-10, and 16-21. We reach the opposite conclusion with respect to the Examiner's obviousness rejection of claims 22-27. Accordingly, we affirm-in-part.

We also use our authority under 37 CFR § 41.50(b) to enter a new ground of rejection of independent claim 22. The basis for these conclusions will be set forth in detail below.

As a general proposition in an appeal involving a rejection under 35 U.S.C. § 103, an Examiner is under a burden to make out a prima facie case of obviousness. If that burden is met, the burden of going forward then shifts to Appellants to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir.

1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

With respect to the Examiner's 35 U.S.C. § 103(a) rejection of independent claim 11 based on the combination of Sudo, Spinner, and Mizutani, after reviewing the Examiner's analysis (Answer, pages 4 and 5), it is our opinion that the stated position is sufficiently reasonable that we find that the Examiner has at least satisfied the burden of presenting a prima facie case of obviousness. The burden is, therefore, upon Appellants to come forward with evidence and/or arguments which persuasively rebut the Examiner's prima facie case. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Brief have not been considered and are deemed waived [see 37 CFR § 41.37(c)(1)(vii)].

Appellants' arguments in response to the obviousness rejection of claim 11 assert that the Examiner has failed to establish a prima facie case of obviousness since all of the claimed limitations are not taught or suggested by the applied prior art references. After careful review of the disclosures of Sudo, Spinner, and Mizutani, in light of the arguments of record, we find Appellants' assertions to be unpersuasive.

Initially, Appellants attack the Examiner's reliance on Sudo as disclosing the claimed control system having an integrated structure. According to Appellants (Reply Brief, pages 5-7; Supplemental Reply brief, pages 2 and 3), in contrast to the claimed integrated structure, Sudo's control system and the magnetic suspension-positioning device are distinct and separate components which are connected together by an electrical cord.

While we don't necessarily disagree with Appellants' characterization of Sudo as providing a non-integral structure, it is apparent from the Examiner's position that is the disclosure of Mizutani that is being relied on for teaching the inclusion of a motor and its controller in an integrated single module. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F. 2d 413, 425, 208 USPQ 871, 881(CCPA 1981); In re Merck & Co., Inc., 800 F. 2d 1091, 1096, 231 USPQ 375, 380 (Fed. Cir. 1986).

We further find to be without merit Appellants' argument (Supplemental Reply Brief, pages 3 and 4; Reply Brief, page 4) which attacks the Examiner's proposed combination by asserting that the applied Mizutani reference, directed to a control system for a servo motor, is not within Appellant's field of endeavor, which is rotary-linear motors, and is therefore not from an art that would be consulted for guidance in how to solve problems

related to rotary-linear motors. We note that the test for non-analogous art is first whether the art is within the field of the inventor's endeavor and, if not, whether it is reasonably pertinent to the problem with which the inventor was involved.

In re Wood, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).

A reference is reasonably pertinent if, even though it may be in a different field of endeavor, it logically would have commended itself to an inventor's attention in considering his problem because of the matter with which it deals. In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1061 (Fed. Cir. 1992).

Our review of the disclosures of Sudo and Spinner, as well as Mizutani, finds it apparent, that the cited references are all directed to motor control structure as claimed. In particular, we make the observation that Mizutani is directed to the same problem faced by Appellants, i.e., the need to reduce the amount of wire harnesses needed to communicate control information between individual parts of a motor system. We also note that Mizutani provides a similar solution as Appellants, i.e., the structural integration into a single module of the control and motor components of the system. In our view, the ordinarily skilled artisan, seeking to solve a wire harness reduction problem in rotary-linear motors, would logically have consulted the disclosures in the motor control arts in general, and

Mizutani, in particular, to address the problem, since wire harness reduction is not limited to rotary-linear motors.

We also find no error in the Examiner's assertion (Supplemental Answer, page 3) that the magnet orientation on the plunger 14 in Sudo satisfies the claim language as set forth in claim 11. As illustrated, for example in Figure 7 of Sudo, the magnets 34a and 34c have north poles which point radially outward and the magnets 36a and 36c have north poles which point radially inward.

For the above reasons, since it is our opinion that the Examiner's prima facie case of obviousness has not been overcome by any convincing arguments from Appellants, the Examiner's 35 U.S.C. § 103(a) rejection of independent claim 11, as well as dependent claims 12-15 not separately argued by Appellants, is sustained.

Turning to a consideration of the Examiner's 35 U.S.C. § 103(a) rejection of claims 1-4, 6-10, and 16-21 based on the combination of Sudo, Spinner, Gerard, and Mizutani, we sustain this rejection as well. With respect to independent claims 1, 16, and 17, Appellants' arguments (Reply Brief, pages 7 and 8; Supplemental Reply Brief, page 4) focus on the alleged lack of disclosure in the applied Sudo reference of motor support bearings as claimed. Our interpretation of the disclosure of Sudo, however, coincides with that of the Examiner. Although

Sudo does not use the terminology "bearings," we find no error in the Examiner's assertion (Answer, pages 11 and 12; Supplemental Answer, pages 4 and 5) that the electromagnetic field interaction between the coils and the magnets in Sudo provide electromagnetic bearings which support the plunger against the motor support as claimed.

We next consider the Examiner's 35 U.S.C. § 103(a) rejection of claims 22-27 based on the combination of Sudo, Spinner, Gerard, and Horikoshi. We note that, while we found Appellants' arguments to be unpersuasive with respect to the Examiner's rejection of claims 1-4 and 6-21 discussed supra, we reach the opposite conclusion with respect to the Examiner's rejection of claims 22-27.

We make the observation that, although independent claim 22 contains similar language as independent claims 1, 11, 16, and 17 in setting forth the single integrated module structure feature, the Examiner did not apply the Mizutani reference relied upon to provide this feature in the previously discussed rejections. Since we agree with Appellants (Reply Brief, pages 8 and 9; Supplemental Reply Brief, pages 5 and 6) that, even if Sudo, Spinner, Gerard, and Horikoshi were combined as proposed by the Examiner, the ensuing combination would not result in a control, motor, and network interface structure that is integrated into a single module, we are constrained to reverse the Examiner's 35

U.S.C. § 103(a) rejection of independent claim 22, as well as claims 23-27 dependent thereon.

Rejection under 37 CFR § 41.50(b)

We make the following new ground of rejection using our authority under 37 CFR § 41.50(b).

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Sudo (U.S. Patent No. 4,644,205) in view of Spinner (U.S. Patent No. 5,771,174), Gerard (U.S. Patent No. 4,751,437, Horikoshi (U.S. Patent No. 5,142,172), and Mizutani (U.S. Patent No. 5,532,533), each of record and cited and applied by the Examiner in this appeal. With respect to the combination of Sudo, Spinner, Gerard, and Horikoshi, we incorporate the Examiner's line of reasoning as set forth at pages 16 and 17 of the Answer. To this combination, we add the Mizutani reference and refer to our discussion supra with respect to the single integrated module structure teachings of Mizutani. It is submitted that the ordinarily skilled artisan would have been motivated and found it obvious to combine the single module integrated motor control structure teachings of Mizutani with Sudo as modified by Spinner, Gerard, and Horikoshi to reduce the amount of wire harnesses required for control communication as taught by Mizutani.

We further note that, although the combination of the Sudo, Spinner, Gerard, Horikoshi, and Mizutani references has been

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applied only against independent claim 22, this is not to be taken as an indication of the patentability of dependent claims 23-27. In any resumption of the prosecution of this application before the Examiner, the Examiner should consider the applicability of the applied prior art as well as the other prior art of record and any other discovered prior art, to dependent claims 23-27.

In summary, we have sustained the Examiner's 35 U.S.C. § 103 rejection of claims 1-4 and 6-21, but have reversed the 35 U.S.C. § 103(a) rejection of claims 22-27. We have also entered a new ground of rejection against claim 22 under 35 U.S.C. § 41.50(b).

This decision contains a new ground of rejection pursuant to 37 CFR § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). 37 CFR § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 CFR § 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of

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the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a). See 37 CFR § 1.136(a)(1)(iv).

AFFIRMED-IN-PART -- 37 CFR § 41.50(b)

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JOSEPH F. RUGGIERO
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Lance Leonard Barry
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Allen R. MacDonald
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